



MAR 31 2004

AP/2826-\$  
PATENT

Case Docket No. MICRON.240A  
Date: March 29, 2004  
Page 1

In re application of : Ammar Derra et al.  
Appl. No. : 09/944,903  
Filed : August 30, 2001  
For : HIGH ASPECT RATIO  
CONTACT STRUCTURE  
WITH REDUCED  
SILICON  
CONSUMPTION  
Examiner : Victor A. Mandala  
Art Unit : 2826

I hereby certify that this correspondence and all marked attachments are being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Mail Stop Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on

March 29, 2004

(Date)

Linda H. Liu, Reg. No. 51,240

**Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450**

Sir:

Transmitted herewith in triplicate is an Appellants' Brief (including Appendix of claims and 3 cases cited in Brief) to the Board of Patent Appeals:

- (X) Fee for filing brief in the amount of \$330 is enclosed.
- (X) A check in the amount of \$330.00 to cover the foregoing fees is enclosed.
- (X) If applicant has not requested a sufficient extension of time and/or has not paid any other fee in a sufficient amount to prevent the abandonment of this application, please consider this as a Request for an Extension for the required time period and/or authorization to charge our Deposit Account No. 11-1410 for any fee which may be due. Please credit any overpayment to Deposit Account No. 11-1410.



**PATENT**

Case Docket No. MICRON.240A

Date: March 29, 2004

Page 2

(X) Return prepaid postcard.

---

Linda H. Liu  
Registration No. 51,240  
Attorney of Record  
Customer No. 20,995  
(909) 781-9231

R:\DOCS\LHL\LHL-6885.DOC:kmb  
032904



PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : Ammar Derra  
Appl. No. : 09/944,903  
Filed : August 30, 2001  
For : HIGH ASPECT RATIO  
CONTACT STRUCTURE WITH  
REDUCED SILICON  
CONSUMPTION  
Examiner : Victor A. Mandala  
Group Art Unit : 2826

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence and all marked attachments are being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on

March 29, 2004

(Date)

Linda H. Liu, Reg. No. 51,240

**ON APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES**  
**APPELLANT'S BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Applicant, in the above-captioned patent application, appeals the rejection of Claims 1-9 which were rejected in the Office Action mailed October 29, 2003. This appeal brief is filed in triplicate.

**I. REAL PARTY IN INTEREST**

The real party in interest is Micron Technology, Inc..

**II. RELATED APPEALS AND INTERFERENCES**

No appeal or interferences related to this case is currently pending.

**III. STATUS OF CLAIMS**

Claims 1-9 are pending and are appealed.

Claims 10-18 are canceled.

Claims 19-26 have been restricted out.

**IV. STATUS OF AMENDMENTS**

No amendments have been filed subsequent to the rejection noted in the Office Action mailed October 29, 2003.

04/01/2004 RHEBRAHT 000000015 09944903  
330.00 0P  
01 FC:1402

Appl. No. : 09/944,903  
Filed : August 30, 2001

**V. SUMMARY OF THE INVENTION**

The present invention concerns an integrated circuit having a contact structure comprising a titanium-based conductive contact configured to reduce consumption of silicon from the substrate during a subsequent silicidation reaction between titanium in the conductive contact and silicon in the substrate, which is summarized at page 3 line 25 to page 4, line 3 and page 4 lines 16-21. The conductive contact is preferably a titanium layer interspersed with titanium silicide that is directly deposited in an opening formed in the contact structure. Page 4, lines 10-14. Preferably, the conductive contact has about 10% silicon interspersed in the titanium layer. Page 4, lines 12-14. The contact structure further includes a contact fill that is deposited over the conductive contact to conform to the contours of the opening and provide improved step coverage, particularly for high aspect ratio contact openings. Page 9, Lines 24-29. The Ti/TiSi<sub>x</sub> conductive contact in combination with the TiN contact fill are particularly suitable in providing superior coverage for high aspect ratio contact openings formed over shallow junction regions.

**VI. ISSUES PRESENTED ON APPEAL**

The following issues are presented:

Whether claims 1, 4-5, & 7-8 are properly rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,312,774 to Nakamura et al.

Whether claims 2-3, 6, & 9 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,312,774 to Nakamura et al.

**VII. GROUPING OF THE CLAIMS**

In the present case, the rejected claims do not all stand or fall together. Applicant submits that each claim presents distinct issues concerning patentability. In the interest of administrative economy and efficiency, however, Applicant agrees to narrow the issues for the purpose of this appeal by grouping the claims as follows:

GROUP 1: Claims 1-3, 5 and 8-9 which relate generally to an integrated circuit having a conductive contact comprising a titanium layer interspersed with titanium silicide and a contact fill deposited thereon, the contact fill comprising titanium nitride. The titanium silicide is interspersed in the titanium layer to reduce the total amount of silicon consumed from the

Appl. No. : 09/944,903  
Filed : August 30, 2001

substrate in a silicidation reaction between titanium in the conductive contact and silicon in the substrate.

GROUP 2: Claims 4, and 6-7 which are directed generally to the same subject matter as Claims 1-3 and 8-9 but which relate to a high aspect ratio contact structure, preferably greater than 10:1, formed over a shallow junction region. The contact structure has a conductive contact comprising titanium interspersed with titanium silicide that is deposited in sufficient quantities to reduce consumption of silicon from the shallow junction region. The contact structure further includes a titanium nitride contact fill that is formed over the conductive contact and provides thorough step coverage of the high aspect ratio contact opening.

### **VIII. ARGUMENT**

A. The Reference Cited By the Examiner Does Not Teach a Contact Structure Having a Ti/TiSi<sub>x</sub> Conductive Contact Deposited in a Contact Opening To Reduce Silicon Consumption in the Substrate During a Subsequent Silicidation Reaction and a TiN Contact Fill Deposited on the Conductive Contact to Fill the Contact Opening with improved step coverage.

Applicant claims an integrated circuit contact structure having a conductive contact made of a titanium layer interspersed with titanium silicide and is deposited in sufficient quantities in the contact opening so as to reduce silicon consumption from the substrate. Applicant further claims the contact structure as having a titanium nitride contact fill that is formed *on* the conductive contact in a manner so as to conform to the contours of high aspect ratio openings. U.S. Patent No. 5,312,774 to Nakamura, et al. cited by the Examiner does not disclose such an invention.

In the Office Action dated October 29, 2003, the Examiner indicated that the pending application is anticipated by Nakamura. However, nowhere in Nakamura et al. does it teach or suggest such a contact structure having the *combination* of a conductive contact comprising titanium interspersed with titanium silicide *and* a titanium nitride contact fill *formed thereon*. Nakamura is only directed to forming a titanium or titanium compound film onto a substrate using a CVD method. The method involves using an organic titanium compound as a material gas for forming the film. (See, e.g., Col. 2, Lines 46-68 of Nakamura) The titanium compound contains one or more organic groups such as a lower alkyl group, a C<sub>8-13</sub> condensed polycyclic hydrocarbonyl group, or a silyl group. The organic group(s) must be decomposed through a

Appl. No. : 09/944,903  
Filed : August 30, 2001

sublimation process after deposition with heat of the substrate. Nakamura provides an example which discloses the formation of a titanium silicide layer by depositing the organic titanium compound in conjunction with a disilane reducing gas. (Col. 6, Lines 15-67) However, Nakamura only describes the formation of a titanium silicide layer and does not teach or suggest the formation of *a titanium layer interspersed with titanium silicide* in sufficient quantities to reduce the consumption of silicon from the substrate in a subsequent silicidation reaction.

Nakamura also does not disclose a titanium nitride contact fill formed on the conductive contact to provide better step coverage for high aspect ratio contact structures. While the Examiner asserted that Figure 2 of Nakamura discloses Applicant's invention, Applicant notes that Figure 2 of Nakamura does not show a TiN contact fill formed in the contact opening. Instead, the contact structure in Figure 2 shows a Ti plug having its upper surface nitridized to form a thin layer of TiN. The TiN layer does not fill the contact opening nor does it contact the  $\text{TiSi}_x$  conductive contact layer. As such, the Nakamura reference does not disclose each and every feature recited in Claim 1 of the pending application. Thus, Applicant submits that Claim 1 is not anticipated by Nakamura.

The Examiner also indicated in the Oct. 29 Office Action that Applicant's invention is obvious in light of Nakamura. However, the mere fact that a reference can be modified to include the limitations of the present invention does not make the modification obvious unless the prior art suggested the desirability of the modification. *See In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) The Examiner has produced no prior art suggesting that the method disclosed in Nakamura can be modified to produce a contact structure having *both* a  $\text{Ti/TiSi}_x$  conductive contact and a TiN contact fill thereon that provides improved step coverage for high aspect ratio contact openings. In fact, Applicant notes Nakamura appears to teach away from forming a high aspect ratio contact structure. Although the Examiner argued that Nakamura also discloses a contact opening having an aspect ratio of at least 10:1 and cited Col. 4 Lines 32-33 for support, Applicant disagrees with the Examiner's conclusion. After carefully reviewing the cited sections, Applicant notes that Col. 4 Lines 32-33 of Nakamura actually discloses that "examples of the contact hole may be formed 0.6-1.0  $\mu\text{m}$  in height and 0.3-1.0  $\mu\text{m}$  in width" which is likely to result in an aspect ratio much less than 10:1. As such, there would have been no motivation for one of ordinary skill in the art to apply the teachings of Nakamura to form a contact structure

Appl. No. : 09/944,903  
Filed : August 30, 2001



comprising a titanium nitride contact fill deposited on a titanium interspersed with titanium nitride conductive contact and configured for high aspect ratio contact holes as claimed by Applicant. As the Federal Circuit has noted, a Section 103 rejection is improper if the "prior art of record fails to provide any such suggestion or incentive. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577 (Fed. Cir. 1984). Applicant further notes that "it is error to reconstruct the patentee's claimed invention from the prior art by using the patentee's claim as a blueprint." *Interconnect Planning Corp. v. Feil*, 227 USPQ 543 (Fed. Cir. 1985)

In summary, the art cited by the Examiner fails to teach a contact structure as claimed by Applicant as the reference does not teach or suggest the formation of a contact structure having a Ti/TiSi<sub>x</sub> conductive contact and a TiN contact fill formed thereon, particularly to improve step coverage of high aspect ratio contact structures. As a consequence, Applicant respectfully submits that that Claim Group I (Claims 1-3, 5, and 8-9) and Claim Group II (Claims 4 and 6-7) are not anticipated by or made obvious by the reference cited by the Examiner.

B. Conclusion

Nothing in the prior art discloses, teaches or suggests the invention recited by the claims of Applicant's disclosure. Furthermore, the art recited by the Examiner fails to supply any motivation or suggestion to apply the reference in the manner suggested by the Examiner. Applicant respectfully submits that the claimed invention is patentably distinct over the prior art. In view of the foregoing, Applicant requests that the rejection of Claims 1-9 be reversed.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 3/29/2004

By: LH  
Linda H. Liu  
Registration No. 51,240  
Attorney of Record  
Customer No. 20,995  
(909) 781-9231

## APPENDIX

1. An integrated circuit, comprising:

    a silicon substrate;

    an insulating layer formed on an upper surface of the substrate wherein a contact opening is formed in the insulating layer, wherein the contact opening extends from an upper surface of the insulating layer to the upper surface of the substrate;

    a conductive contact deposited in the opening in a manner such that the conductive contact directly contacts the upper surface of the substrate, wherein the conductive contact comprises a titanium layer interspersed with titanium silicide, wherein a substantial portion of the titanium silicide is interspersed in the titanium prior to the depositing in the opening such that the substantial portion of titanium silicide reduces the total amount of silicon from the substrate consumed in forming titanium silicide in the conductive contact;

    a conductive contact fill formed on an upper surface of the conductive contact, wherein the conductive contact fill comprises titanium nitride.

2. The integrated circuit of Claim 1, wherein the titanium layer interspersed with titanium silicide is approximately 50Å to 150Å thick.

3. The integrated circuit of Claim 1, wherein the titanium layer interspersed with titanium silicide comprises approximately 10 % silicon.

4. The integrated circuit of Claim 1, wherein the contact opening has an aspect ratio of at least 10:1.

5. The integrated circuit of Claim 1, wherein the upper surface of the substrate comprises a junction region.

6. The integrated circuit of Claim 5, wherein the junction region is less than about 1µm deep.

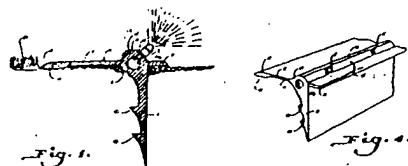
7. The integrated circuit of Claim 5, wherein the titanium silicide in the titanium layer provides low resistance electrical contacts between the junction region and the silicon substrate.

8. The integrated circuit of Claim 1, wherein the titanium rich titanium silicide layer is deposited over the upper surface of the insulating layer.

9. The integrated circuit of Claim 1, wherein the titanium nitride contact fill comprises a  $TiCl_4$  based titanium nitride.

## Standard of Review

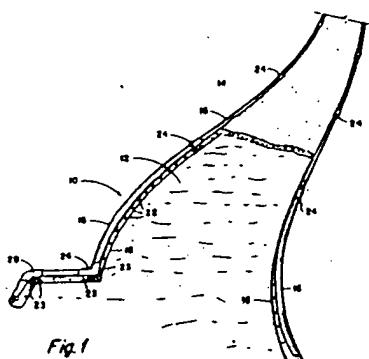
[1] “[O]bviousness is a question of law to be determined from the facts.”<sup>5</sup> The obviousness determination “is based upon underlying factual inquiries concerning the claimed invention and the prior art” which are reviewed for clear error.<sup>6</sup> However, it is the ultimate conclusion of obviousness which the Federal Circuit reviews as a matter of law.<sup>7</sup>



## b. The Hendrix Patent

The Hendrix patent is entitled “Loose Material Retainer Strip”.<sup>8</sup> The Solicitor chose not to discuss the Hendrix reference in his brief, stating that the Board had deemed Hendrix unnecessary to its decision. The Solicitor overstates the Board’s position. The Board based its decision upon “a collective evaluation of the Wilson and Hendrix patents”. We include Hendrix in our discussion because it did play a role in the rejection of Fritch’s independent claims.

The Hendrix device is composed of elongated, flexible strips having substantially C-shaped cross-section. The bottom lip of the device is to be wider than the top lip in order to facilitate fastening the device to the ground. The device will fit most gentle contours, and the top lip will yield laterally to build-up of gravel until the gravel can be redistributed. The concave portion of the strip is installed such that it faces the material to be retained in place. Hendrix contemplates that the retainer will be used in retaining gravel in driveways, lining flower beds, or on the shoulders of asphalt or concrete highways. Figure 1 of Hendrix’s drawings is reproduced below:



<sup>4</sup> U.S. Patent No. 4,349,596.

Fritch takes exception to the Examiner’s findings of fact related to the teachings of the Wilson patent. The Examiner’s rejection and the Board’s opinion rely heavily on the use of Wilson in view of other references to declare the Fritch invention obvious. The Board states that it agrees with the Examiner’s finding of fact regarding the teachings of Wilson. In the Examiner’s answer, which the Board quotes, the Wilson device is described as follows:

Wilson discloses a landscaping edging strip comprising a relatively thin gauge, elongated flexible base portion including a mower strip B having a planar bottom surface conformable to a varying slope surface.

The Board states that the Wilson reference presents “substantial evidence that Wilson is both thin and flexible.” The Board regards the Wilson device as teaching that it is flexible and conformable in its entirety. This finding demonstrates clear error.

[2] It is well settled that a prior art reference is relevant for all that it teaches to those of ordinary skill in the art.<sup>9</sup> The base portion of Wilson is not planar in its entirety, as the Board’s opinion suggests, but also includes a prominent anchoring leg to secure the device to the ground. The anchoring leg, which runs the length of the Wilson device, would inhibit longitudinal flexibility of the Wilson device. Indeed, Wilson expressly contemplates flexibility and conformability only in the mower strip. Wilson states that its mower strip may be lifted in order to pack dirt thereunder for the purpose of securing the device to the ground. Fritch, on the other hand, is claimed to be flexible in its entirety.

<sup>5</sup> *In re De Blauwe*, 736 F.2d 699, 703, 222 USPQ 191, 195 (Fed. Cir. 1984).

<sup>6</sup> *In re Kulling*, 897 F.2d 1147, 1149, 14 USPQ2d 1056, 1057 (Fed. Cir. 1990).

<sup>7</sup> *In re De Blauwe*, 736 F.2d at 703, 222 USPQ at 195.

<sup>8</sup> *Beckman Instruments Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551, 13 USPQ2d 1301, 1304 (Fed. Cir. 1989).

The in its  
Se  
confc  
manr  
desc  
botto  
slope  
to the  
ever, i  
it mu  
expres  
be pus  
rain a  
Wilson  
the W  
must t  
rather  
Wilson  
Fritch,  
such ex  
face in

In pi  
Tradern  
burden  
obvious  
“[The I  
only by  
the prio  
available  
would le  
relevant  
patent ap  
iner’s pri  
erly mad  
objective  
clusion of

Fritch  
that the I  
claimed in  
view of th  
Board sta  
the Wilson  
have rend  
pendent cl  
one of ordi  
there is no  
in the prio

<sup>9</sup> *In re Pic*  
USPQ 785.

<sup>10</sup> *In re Fir*  
1596, 1598 (

747 F.2d 70:

Cir. 1988)).

<sup>11</sup> *In re He*

676, 678 (CC

tard of Review

ess is a question of law to m the facts." The obvi-  
on "is based upon under-  
quiries concerning the  
and the prior art" which  
lear error.<sup>6</sup> However, it is  
ion of obviousness which  
it reviews as a matter of

ings of Wilson

option to the Examiner's  
lated to the teachings of  
The Examiner's rejection  
ion rely heavily on the  
ew of other references to  
invention obvious. The  
agrees with the Exam-  
regarding the teachings of  
niner's answer, which the  
Wilson device is described

a landscaping edging  
a relatively thin gauge,  
base portion including a  
having a planar bottom  
able to a varying slope

at the Wilson reference  
il evidence that Wilson is  
le." The Board regards  
s teaching that it is flexi-  
le in its entirety. This  
s clear error.

ed that a prior art refer-  
ll that it teaches to those  
the art.<sup>7</sup> The base por-  
planar in its entirety, as  
1 suggests, but also in-  
anchoring leg to secure  
und. The anchoring leg,  
th of the Wilson device,  
udinal flexibility of the  
d, Wilson expressly con-  
and conformability only  
Wilson states that its  
lifted in order to pack  
the purpose of securing  
und. Fritch, on the other  
e flexible in its entirety.

736 F.2d 699, 703, 222  
Cir. 1984).

77 F.2d 1147, 1149, 14  
Fed. Cir. 1990).

, 736 F.2d at 703, 222

ents, Inc. v. LKB Pro-  
1547, 1551, 13 USPQ2d  
1989).

The Board's holding that Wilson is flexible  
in its entirety is based upon a misapprehension  
of the scope of Wilson's teachings.

Second, Wilson's anchoring leg prohibits  
conformability to the ground surface in the  
manner claimed by Fritch. The Examiner's  
description of Wilson as having a "planar  
bottom surface conformable to a varying  
slope surface" is applicable only in reference  
to the mower strip. This description, how-  
ever, ignores the anchor leg and the fact that  
it must be placed into the ground. Wilson  
expressly teaches that the anchoring leg may  
be pushed into soft soils, but in harder ter-  
rain a trench is needed in order to place the  
Wilson sprinkler system. In order to install  
the Wilson apparatus, the ground surface  
must be altered to conform to the device  
rather than, as the Solicitor contends, that  
Wilson is freely conformable to the ground.  
Fritch, on the other hand, does not require  
such extensive alteration of the ground sur-  
face in order to install the device.

#### Prima Facie Obviousness

In proceedings before the Patent and  
Trademark Office, the Examiner bears the  
burden of establishing a prima facie case of  
obviousness based upon the prior art.<sup>8</sup>  
"[The Examiner] can satisfy this burden  
only by showing some objective teaching in  
the prior art or that knowledge generally  
available to one of ordinary skill in the art  
would lead that individual to combine the  
relevant teachings of the references."<sup>9</sup> The  
patent applicant may then attack the Exam-  
iner's prima facie determination as improp-  
erly made out, or the applicant may present  
objective evidence tending to support a con-  
clusion of nonobviousness.<sup>10</sup>

Fritch has attacked the Board's finding  
that the Examiner established that Fritch's  
claimed invention was prima facie obvious in  
view of the teachings of the prior art. The  
Board states that "a collective evaluation of  
the Wilson and the Hendrix patents would  
have rendered the subject matter of inde-  
pendent claims 1, 13, 24, and 29 obvious to  
one of ordinary skill." Fritch maintains that  
there is no teaching, suggestion, or incentive  
in the prior art to modify or to combine the

teachings of the prior art in the manner  
suggested by the Examiner. We agree.

[3] Wilson teaches a grass edging and wa-  
tering device which includes an anchoring  
leg for securing the device to the ground.  
Wilson contemplates that a trench will need  
to be dug in order to allow the anchoring leg  
to be placed into the ground if the condition  
of the soil requires it. This anchoring leg  
prohibits flexibility and conformability over  
the length of Wilson. Any flexibility or con-  
formability in Wilson, which the Board  
states extends to the entire device, is limited  
to the mower strip. It is only the mower strip  
that is mentioned as being flexible in order to  
aid installation. Hendrix has been cited for  
its teaching of a flexible retainer strip that is  
able to conform to the ground surface.

Wilson addresses the problems of arrest-  
ing growth of grass between areas and water-  
ing plants without wetting sidewalks. Wilson  
lacks any suggestion or incentive to use its  
water conduit as a landscape retainer since  
this would arguably result in clogged sprin-  
kler heads.<sup>12</sup> Wilson also teaches that its  
mower strip is flexible in order to allow dirt  
to be packed thereunder. There is no sugges-  
tion in Wilson to extend that flexibility to the  
entire device. Wilson also lacks any teaching  
or suggestion that one should remove the  
anchoring leg. Hendrix does not, simply by  
virtue of its flexible nature, suggest these  
extensive changes which the Board states are  
obvious. Neither Wilson nor Hendrix, alone  
or in combination, provide any incentive to  
combine the teachings of the prior art in the  
manner maintained by the Board.

[4] "Obviousness cannot be established by  
combining the teachings of the prior art to  
produce the claimed invention, absent some  
teaching or suggestion supporting the combi-  
nation. Under section 103, teachings of re-  
ferences can be combined only if there is  
some suggestion or incentive to do so."<sup>13</sup>  
Although couched in terms of combining  
teachings found in the prior art, the same  
inquiry must be carried out in the context of  
a purported obvious "modification" of the  
prior art. The mere fact that the prior art  
may be modified in the manner suggested by  
the Examiner does not make the modification  
obvious unless the prior art suggested

<sup>1</sup> *In re Piascetti*, 745 F.2d 1468, 1471-72, 223  
USPQ 785, 787-88 (Fed. Cir. 1984).

<sup>2</sup> *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d  
1596, 1598 (Fed. Cir. 1988) (citing *In re Lalu*,  
747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed.  
Cir. 1988)).

<sup>3</sup> *In re Heldt*, 433 F.2d 808, 811, 167 USPQ  
676, 678 (CCPA 1970).

<sup>4</sup> This court has previously found a proposed  
modification inappropriate for an obviousness in-  
quiry when the modification rendered the prior  
art reference inoperable for its intended purpose.  
*In re Gordon*, 733 F.2d 900, 902, 221 USPQ  
1125, 1127 (Fed. Cir. 1984).

<sup>5</sup> *ACS Hosp. Systems, Inc. v. Montefiore  
Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933  
(Fed. Cir. 1984).

GIES sound much like, especially if (as is the case and to the TTAB) if derived from the similarity in sound is his instance because his radio and televisionally stressed the JGGIES.

commercial impression significantly — er which hugged a would be perceived ne Doug. But this striking one at most, face of the evidence advertises its diapers a number of given could be just such a that the two prod-

source (or sponsored) though the TTAB substantial nature of [K-C's] HUGGIES over \$300 million in advertising in the decision took inadvertent factor. In view on that point, we, Inc., *supra*, that required considerable favor in determining 710 F.2d at 1570,

g K-C is that, in the s, only appellant has use of DOUGIES) a pending in "IES." of that type with that GIES. only favoring HDE is of actual confusion.

IES was in fact drawn chief figure in appellee in Douglas: Board recognized that goodwill in the product purchasers have come to saying" K-C's products been used since June rs now rank among the ble diapers. in the TTAB proceed say that its mark had is no doubt that appellee on, and strong contention," "well-known" isistic of its mark HUG facts.

Appellee insists that we should also count for it the fact that its trade dress is different from that of HUGGIES. It is settled, however, that a distinction in trade dress cannot weigh against likelihood of confusion with respect to the registration of a simple word mark like DOUGIES. The reason is that such dress might well be changed at any time; only the word mark itself is to be registered. *Vorando, Inc. v. Breuer Electric Mfg. Co.*, 390 F.2d 724, 727, 156 USPQ 340, 342 (CCPA 1968). Accordingly, HDE's strong reliance on *Quaker Oats Co. v. General Mills*, 134 F.2d 429, 56 USPQ 400 (7th Cir. 1943), is misplaced. That pre-Lanham Act decision did not at all involve registration of the mark "Oaties" (registration had in fact been denied) but solely differences in packaging and trade dress as against "Wheaties."

### III.

[1] The upshot of our own appraisal of the pertinent factors is that there is indeed a likelihood of confusion with K-C's mark HUGGIES. We are not loath to reach this conclusion because of the teaching of our predecessor court — recently reiterated by this court — that there is "no excuse for ever approaching the well-known trademark of a competitor" and "that all doubt as to whether confusion, mistake, or deception is likely is to be resolved against the newcomer, especially where the established mark is one which is famous and applied to an inexpensive product bought by all kinds of people without much care." *Planters' Nut & Chocolate Co. v. Crown Nut Co.*, 305 F.2d 916, 924-25, 134 USPQ 504, 511 (CCPA 1962). To the same effect, see *Specialty Brands, supra*, 748 F.2d at 676, 223 USPQ at 1284. We therefore reverse the decision of the TTAB dismissing K-C's opposition.

REVERSED.

<sup>1</sup> Belatedly, appellee argues that "HUGGIES" is descriptive but this separate defense was not raised in its pleadings or briefs below. Only the unlikelihood of confusion was raised against HUGGIES.

<sup>2</sup> Reverend Douglas, principal in HDE, testified that he was aware of the HUGGIES mark before he adopted DOUGIES.

### Court of Appeals, Federal Circuit

Interconnect Planning Corporation v. Feil, et al.

Nos. 84-1467 and 85-565  
Decided October 9, 1985

### PATENTS

#### 1. Estoppel — As to validity — In general (§35.151)

Federal district court decision on patent validity, which was not final, not certified, not appealed, and mooted by subsequent events, does not collaterally estop appeal of those aspects of subsequent decision on reissue of patent which are "common to" earlier decision, since current appeal involves validity of claims of reissue patent, which was issue that did not exist at time of decision on validity of original patent claims.

#### 2. Patentability — Anticipation — In general (§51.201)

##### Reissue — In general (§58.1)

Patent's reissuance with claims that are not substantially identical to original claim requires evaluation of invention as whole, as currently claimed, in terms of 35 USC 103, and original claims, whether valid or invalid, are not prior art against reissued claims.

#### 3. Patentability — Aggregation or combination — In general (§51.151)

Federal district court erred by treating each prior art reference as teaching one or more of specific components for use in claimed system, even though such system did not then exist.

##### Particular patents — Telephone Switches

Re. 31,144, Feil, Multi-Station Telephone Switching System, holding of invalidity vacated.

Appeal from District Court for the Southern District of New York, Duffy, J.; 223 USPQ 961.

Action by Interconnect Planning Corporation, against Thomas E. Feil, Robert O. Carpenter, V Brand, Inc., and Turret Equipment Corp.,\* for patent infringement and unfair competition, in which defendants counterclaim

\* The complaint against Robert O. Carpenter and Turret Equipment Corp. was dismissed by stipulation, and they are not parties to this appeal.

for declaration of patent invalidity. From decision granting defendants' motion for summary judgment, plaintiff appeals. Vacated and remanded.

Alfred P. Ewert, and Morgan, Finnegan, Pine, Foley & Lee, both of New York, N.Y. (Jerome G. Lee, Robert A. Molan, and Richard J. McGrath, on the brief, and Howard Karasik, and Sherman & Citron, P.C., both of New York, N.Y., of counsel) for appellant.

Lawrence G. Kurland, and Hubbell, Cohen, Steifel & Gross, P.C., both of New York, N.Y. (Lance J. Lieberman, Daniel L. Dolgin, Towne, Dolgin, Sawyer & Horton, Peter P. Stern, Theodore S. Steingut, and Berger, Steingut, Weiner, Fox & Stern, all of New York, N.Y., on the brief) for appellees.

Before Davis, Smith, and Newman, Circuit Judges.

Newman, Circuit Judge.

Interconnect Planning Corporation (IPC) appeals from the summary judgment of the United States District Court for the Southern District of New York, *Interconnect Planning Corp. v. Feil*, 587 F.Supp. 1495, 223 USPQ 961 (S.D.N.Y. 1984), holding invalid all the claims of IPC's Reissue Patent No. 31,144 entitled "Multi Station Telephone Switching System," invention of Thomas E. Feil, for failure to meet the conditions for patent validity under 35 U.S.C. § 103, and dismissing IPC's count for patent infringement. We hold that invalidity under § 103 has not been proven, as a matter of law. We vacate the summary judgment of invalidity and dismissal of the infringement count, and remand to the district court.

#### Background

The claims of Reissue Patent No. 31,144 are for certain telephone systems known as "trader turrets", which are multi-line telephone consoles used by the financial community in trading networks for securities, commodities, currency, and the like. The purpose of these systems is to facilitate concurrent telephone connections for traders requiring multiple sources of price information, conducting multiple transactions, and generally meeting the communication demands of busy, often hectic, financial trading enterprises. Trading rooms may house a hundred or more trader turrets.

Because of the large number of lines and connections required and the specific needs of these communication networks, these systems are complex. A high degree of reliability is required in their operation, because even momentary failures can be extremely costly.

The record shows that the Feil trader turrets rapidly achieved commercial success, displacing other systems then in use. IPC attributes the success of the Feil invention to its novel system "architecture", which enabled ease of operation, high capacity, and improved reliability over the systems then available. IPC's sales of the Feil trader turrets, according to the record, grew from \$320,000 for 20 units in 1974, its first year, to \$27,900,000 for 3500 units in 1983.

Thomas Feil, the inventor, was formerly an officer and part owner of IPC. In 1977 Mr. Feil formed the defendant company V Band Systems, Inc., and in 1980 Mr. Feil left IPC and joined V Band, of which he is president and chief executive officer. Defendants make and sell the trader turrets that are here accused of patent infringement.

On November 21, 1980, IPC filed suit in the Southern District of New York asserting infringement of U.S. Patent No. 3,991,282 (the '282 patent), invention of Thomas Feil. Defendants Feil and V Band raised the defense that this patent was invalid in terms of 35 U.S.C. §103. IPC's count for unfair competition was dismissed by the court and is not before us. Various counterclaims were separated and are apparently still pending.

In May of 1981 IPC filed in the U.S. Patent and Trademark Office (the PTO) an application to reissue the '282 patent. IPC cited to the examiner articles by M.E. Ozenberger and W.H. Keith, both of the Bell Telephone Laboratories, on which articles defendants were relying before the district court, and which had not previously been before the examiner. The district court refused to stay the action before it pending completion of the reissue examination, and therefore the reissue examination was suspended by the PTO in accordance with its rules. On defendants' motion for summary judgment, the district court on June 1, 1982 held all claims of the '282 patent invalid for obviousness under 35 U.S.C. § 103. *Interconnect Planning Corp. v. Feil*, 543 F.Supp. 610, 614-19, 215 USPQ 734, 736-41 (S.D.N.Y. 1982).

Following this decision, at IPC's request the PTO resumed examination of the reissue application. The court's decision was provided to and considered by the examiner. A supple-

the number of lines and in the specific needs of networks, these systems degree of reliability isation, because even more extremely costly.

that the Feil trader turned commercial success, discs then in use. IPC at the Feil invention to its structure, which enabled capacity, and improved systems then available. trader turrets, according from \$320,000 for 20 units to \$27,900,000 for 3500

inventor, was formerly an er of IPC. In 1977 Mr. defendant company V Band 1980 Mr. Feil left IPC of which he is president officer. Defendants make trets that are here accused nt.

1980, IPC filed suit in the New York asserting in- patent No. 3,991,282 (the ion of Thomas Feil. De- Band raised the defense lid in terms of 35 U.S.C. or unfair competition was urt and is not before us. ns were separated and are ding.

PC filed in the U.S. Patent ice (the PTO) an applica- 82 patent. IPC cited to the y M.E. Ozenberger and the Bell Telephone Labo- articles defendants were strict court, and which had before the examiner. The to stay the action before it of the reissue examination: the reissue examination he PTO in accordance with tants' motion for summary ict court on June 1, 1982 the '282 patent invalid for 35 U.S.C. § 103. *Intercon-* v. Feil, 543 F.Supp. 610, Q 734, 736-41 (S.D.N.Y.

ecision, at IPC's request the mination of the reissue ap- t's decision was provided to the examiner. A supple-

mental reissue declaration by IPC referred to this decision as a basis for the reissue application. The '282 patent was surrendered, and on February 8, 1983 the PTO granted the reissue patent, RE 31,144, IPC having restricted its claims in various ways and having overcome the newly cited prior art.

Defendants moved for summary judgment of invalidity of the reissue patent, asserting collateral estoppel based on the court's decision on the '282 patent, and also asserting invalidity under 35 U.S.C. § 103. IPC resisted the motion, and the parties' memoranda, affidavits, depositions, and other documents are of record. For reasons similar to those of the 1982 decision, the motion for summary judgment was granted on June 20, 1984.

That decision, holding all of the reissue claims invalid, was certified and made final under Fed. R. Civ. P. 54(b), with instructions by the court that IPC "attempt to have any appeal . . . heard at the same time and before the same panel" as any appeal from a decision on the same patent by the United States District Court for the District of New Jersey.<sup>1</sup> We agreed. Both appeals are decided this day.

Although both appeals involved similar issues and argument, specific to the New York suit are certain procedural issues, as discussed *infra*.

#### Collateral Estoppel

Defendants argue that IPC's appeal rights are curtailed on the basis of collateral estoppel. Two separate but related issues of estoppel are raised, both arising out of the district court's 1982 decision on the '282 patent.

#### A.

Defendants assert first that IPC can not now appeal from or argue those aspects of the 1984 decision on the reissue patent which are "common to" the 1982 decision on the '282 patent, on the ground that those aspects could have been appealed earlier, and that it is too late to do so now. IPC asserts in response that (1) the issues are not the same, (2) a different patent is involved, and (3) the 1982 decision was not final.

Considering the finality issue, for collateral estoppel to arise the prior decision need not have been final in the sense of 28 U.S.C. § 1291 but, in the words of the Restatement, the prior

adjudication must have been "sufficiently firm to be accorded conclusive effect". Restatement (Second) of Judgments § 13 (1982). Sufficient firmness, according to the Restatement, requires that the party against whom the estoppel is asserted have had the right, even if not exercised, to challenge on appeal the correctness of the earlier decision. Restatement (Second) of Judgment, § 13 reporter's note comment f (1982). Defendants argue that IPC had three such opportunities: appeal under 28 U.S.C. § 1292(a)(1), which governs appeals from interlocutory orders involving injunctions; appeal under 28 U.S.C. § 1292(c)(2), which governs appeals in patent infringement cases final except for an accounting; and appeal under Fed.R.Civ.P. 54(b), which governs judgment on fewer than all of multiple claims in an action.

None of these situations controls the case before us. 28 U.S.C. § 1292(a)(1) relates to orders involving injunctions, and although defendants argue that IPC's complaint necessarily invokes this section, this does not impart automatic appealability to interlocutory orders that do not involve injunctions. As for 28 U.S.C. § 1292(c)(2), the district court's judgment was not final except for an accounting, in light of the pendency of counterclaims. 9 J. Moore, B. Ward, & J. Lucas, *Moore's Federal Practice*, ¶ 110.19[4], at 220 (1985). Fed. R. Civ. Proc. 54(b) requires that the court have expressly directed entry of a final judgment, and that "[i]n the absence of such determination and direction, any [decision] which adjudicates fewer than all the claims . . . shall not terminate the action as to any of the claims". See also 6 *Moore's Federal Practice* ¶ 54.42, at 813.

Neither IPC nor the defendants asked the district court to enter a final judgment on its decision holding the '282 patent invalid, and the court did not do so. Defendants assert, however, that IPC should now be estopped because it did not move for finality of the ruling nor request that the judgment be certified for interlocutory appeal. An application for certification is by no means certain to be granted and, in this case, IPC's eventual request for certification of the original decision was opposed by defendants and was refused by the court.

The law of collateral estoppel is not intended to penalize a party for declining to try to take a piecemeal appeal. Further, the '282 patent had been placed in reissue, and an appeal on the merits of patent claims for which reissue was being sought would have been a meaningless exercise, as may have been recognized at the time.

[1] We conclude that the district court's 1982 decision on the '282 patent claims, a

<sup>1</sup> *IPC Communications, Ltd. v. Standard Tele-*  
services Supply, Inc., No. 81-1832D (D.N.J. 1984)  
(unreported), vacated and remanded, No. 84-1599  
(Fed. Cir. 1985) (unreported).

decision not final, not certified, not appealed, and mooted by subsequent events, lacks collateral estoppel effect for the purpose urged by defendants. The issue here on appeal is the validity of the claims of the reissue patent, an issue that did not exist at the time of the decision on validity of the '282 patent claims. There is no estoppel against appellate review of all aspects pertinent to the decision on the reissue claims. 1B Moore's Federal Practice ¶ 0.441 [3-3], at 737.

## B.

IPC asserts that the district court incorrectly invoked collateral estoppel when it analyzed the reissue claims by comparing them with the original claims of the '282 patent, then applying prior art only to the differences between the reissue claims and the original claims. Our predecessor court, the U.S. Court of Claims,<sup>2</sup> has confronted related situations, wherein estoppel was raised as to unadjudicated claims of a patent whose other claims had been adjudicated in an earlier action. The Court of Claims adopted a pragmatic approach, stating that the first step was to determine whether any new issues were raised as to the nonlitigated claims. In *Westwood Chemical, Inc. v. United States*, 525 F.2d 1367, 1375, 187 USPQ 656 (Ct.Cl. 1975), adopting 186 USPQ 383, 389 (Ct.Cl.Tr.Div. 1975), the court said:

Where obviousness is the basis for the prior invalidity holding, an inquiry into the identity of the validity issue is more properly phrased in terms of the factual inquiries mandated by *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 466-467, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966), as a prerequisite to such a validity determination.

Applying the *Graham* guidelines, the court said:

Thus, the inquiry should be whether the nonlitigated claims present new issues as to the art pertinent to the nonlitigated claims; as to the scope and content of that art; as to the differences between the prior art and the nonlitigated claims; and as to the level of ordinary skill in that art. If none of these inquiries raises any new triable issues, then the obviousness determination in the prior proceeding should be equally applicable to the nonlitigated claims.

<sup>2</sup> In *South Corp. v. United States*, 690 F.2d 1368, 215 USPQ 657 (Fed. Cir. 1982), the Federal Circuit adopted as precedent the decisions of the Court of Claims and the Court of Customs and Patent Appeals.

*Id. See also Bourns, Inc. v. United States*, 537 F.2d 486, 199 USPQ 256 (Ct. Cl. 1976), adopting 187 USPQ 174 (Ct. Cl. Tr. Div. 1975); *Carter-Wallace, Inc. v. United States*, 496 F.2d 535, 538, 182 USPQ 172, 175 (Ct. Cl. 1974) (in determining the applicability of the estoppel, the first consideration is "whether the issue of invalidity common to each action is substantially identical.").

The question of substantial identity of reissue claims arose in *Plastic Container Corp. v. Continental Plastics of Oklahoma, Inc.*, 607 F.2d 885, 203 USPQ 27 (10th Cir. 1979), cert. denied, 444 U.S. 1018, 204 USPQ 696 (1980), wherein the court determined that the reissue claims were not substantially identical to the original claims, and therefore that collateral estoppel did not apply.

In *Bourns*, responding to plaintiff's argument that according collateral estoppel effect to non-identical adjudicated claims would amount to treating the claims previously held to be invalid as prior art, the court agreed that this would be inappropriate:

A domino approach in which each successively narrower claim is compared with the one before it, not with the prior art, is inappropriate since it improperly gives prior-art effect to the subject matter of an invalid claim. *In re Craig and Street, Cust. & Pat. App.*, 411 F.2d 1333, 1335, 162 USPQ 157, 158-159 (1969).

537 F.2d at 493, 187 USPQ at 179.

The district court compared the reissue claims with the '282 claims, and erroneously concluded that reissue claims 1 through 6 were substantially identical to the original claims, and that reissue claims 7 through 9, although not substantially identical, involved some substantially identical "issues".

This erroneous legal conclusion may have compounded the error in the next step, wherein the court compared the differences between the original and the reissue claims with prior art that was pertinent only to those differences, thus effectively giving the original claims prior art effect — the pitfall against which *Bourns* cautioned:

A claim may be invalid for obviousness under 35 U.S.C. § 103 but still describe a combination not found in the prior art. Moreover, it is well settled that each claim of a patent is entitled to a presumption of validity and is to be treated as a complete and independent invention. 35 U.S.C. §§ 282, 288. *Leeds & Catlin v. Victor Talking Machine Co.*, 213 U.S. 301, 319, 29 S.Ct. 495, 53 L.Ed. 805 (1909); *Smith Industries International v. Hughes Tool Co.*, 396 F.2d 735, 736 (5th Cir. 1968).

[2] I  
claim  
the o  
now  
U.S.  
valid  
reissu

TI  
taker  
court  
tion  
defer  
IPC  
ate  
pres

De  
the d  
mate  
befor  
appe  
was  
discu  
claim  
ent,  
issue  
and I  
223  
proce  
not e  
ceedi

Ol  
is a q  
preli  
ing f:  
Deer  
See c  
F 2d  
(Fed  
116,  
issue  
prior  
and t  
of or  
inver  
onda  
pora

In  
were  
the C  
subm  
accor  
cited  
Exar  
State

*Bourns, Inc. v. United States*, 537 199 USPQ 256 (Ct. Cl. 1976), 37 USPQ 174 (Ct. Cl. Tr. Div. *er-Wallace, Inc. v. United States*, 35, 538, 182 USPQ 172, 175 (Ct. in determining the applicability of the first consideration is "whether invalidity common to each action is identical").

tion of substantial identity of re-arose in *Plastic Container Corp. v. Plastics of Oklahoma, Inc.*, 607 33 USPQ 27 (10th Cir. 1979), cert. U.S. 1018, 204 USPQ 696 (1980); court determined that the reissue is not substantially identical to the prior art, and therefore that collateral estoppel does not apply.

is, responding to plaintiff's argument that the prior art, the court agreed that the reissue claims would be inappropriate:

o approach in which each successive claim is compared with the prior art, not with the prior art, is correct since it improperly gives priority to the subject matter of an aim. *In re Craig and Street, Cust. App.*, 411 F.2d 1333, 1335, 162 57, 158-159 (1969).

493, 187 USPQ at 179.

strict court compared the reissue of the '282 claims, and erroneously held that reissue claims 1 through 6 were not identical to the original claims, while claims 7 through 9, although substantially identical, involved some substantially identical "issues".

obvious legal conclusion may have led the court to the error in the next step, where it compared the differences between the prior art and the reissue claims with prior art pertinent only to those differences, thereby giving the original claims priority - the pitfall against which *Bourns*

may be invalid for obviousness under U.S.C. § 103 but still describe a feature not found in the prior art. It is well settled that each claim is entitled to a presumption of validity and is to be treated as a complete and valid invention. 35 U.S.C. §§ 101, 102, 103. *Leeds & Catlin v. Victor Talking Co.*, 213 U.S. 301, 319, 29 S.Ct. 56, 805 (1909); *Smith Industries v. Hughes Tool Co.*, 396 F.2d 596, 180 (5th Cir. 1968).

[2] *Id.* When a patent has been reissued with claims that are not substantially identical to the original claims, the invention as a whole, as now claimed, must be evaluated in terms of 35 U.S.C. § 103. The original claims, whether valid or invalid, are not prior art against the reissued claims.

### The Summary Judgment

The proceeding from which this appeal is in many of these documents, the factual considerations required by the *Graham* analysis appear to have been adequately presented in the record. The technological structure and operation of the devices of the prior art were not in material dispute,<sup>3</sup> although there was strong dispute about the relationship of the teachings of the references to the problems solved by the Feil system, and the weight to be given to evidence of the Feil invention's commercial success.

The district court stated that expert testimony was unnecessary, *Interconnect Planning Corp. v. Feil*, 587 F.Supp. at 1497, 223 USPQ at 963, and held all of the reissue claims invalid. As will be discussed, we think that the district court reached this conclusion by incorrectly applying the law of 35 U.S.C. § 103.

### 35 U.S.C. § 103

Those charged with determining compliance with 35 U.S.C. § 103 are required to place themselves in the minds of those of ordinary skill in the relevant art at the time the invention was made, to determine whether that which is now plainly at hand would have been obvious at such earlier time.

The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time.

The invention must be evaluated not through the eyes of the inventor, who may have been of exceptional skill, but as by one of "ordinary skill." See *Stewart-Warner Corp. v. City of Pontiac, Michigan*, 767 F.2d 1563,

Obviously *vel non* under 35 U.S.C. § 103 is a question of law, whose conclusion requires a preliminary determination of several underlying factual issues, as set out in *Graham v. John Deere Co.*, 338 U.S. 1, 148 USPQ 459 (1966). See also *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 1344-45, 220 USPQ 777, 782-83 (Fed. Cir.) (in banc), cert. denied, 105 S.Ct. 116, 225 USPQ 232 (1984). These factual issues relate to the scope and content of the prior art, the differences between the prior art and the claimed invention as a whole, the level of ordinary skill in the art at the time the invention was made, and the so-called "secondary considerations" that reflect the contemporaneous response to the invention.

In reviewing IPC's assertions that there were genuine issues of material fact relating to the *Graham* inquiries, we have reviewed the submissions of the parties. Before the court, according to the record, were all the references cited as prior art, as well as the depositions of Examiner Randall P. Myers of the United States Patent and Trademark Office, engineer

<sup>3</sup> IPC argues that the district court should not have resolved any question of substantial identity between the claims of the original and reissue patents in defendants' favor because that is a contested fact question which should not have been resolved against the nonmovant, citing *Tee-Pak, Inc. v. St. Regis Paper Co.*, 491 F.2d 1193, 1200, 181 USPQ 75, 80 (6th Cir. 1974). Under this court's precedent, substantial identity between claims, a matter of claim interpretation, is a question of law. See, e.g., *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 956, 220 USPQ 592, 596 (Fed. Cir. 1983), cert. denied, 105 S.Ct. 127, 225 USPQ 232 (1984).

1570, 226 USPQ 676, 680-81 (Fed. Cir. 1985).

This is not a facile statutory interpretation. The quality of non-obviousness is not easy to measure, particularly when challenged years after the invention was made. That which may be made clear and thus "obvious" to a court, with the invention fully diagrammed and aided, in this case, by a hostile inventor seeking to eliminate his own invention, may have been a breakthrough of substantial dimension when first unveiled.

The judicial application of uniform standards for determining compliance with 35 U.S.C. § 103 is essential, because the technological incentives fostered by the patent system depend on consistent interpretation of the law. To this end, faithful adherence to the patent statute and guiding precedent fosters uniformity in result.

#### A.

Following examination by the Patent and Trademark Office, a duly issued patent is presumed valid, as is a duly reissued patent. The burden of proving otherwise resides with the person challenging its validity. 35 U.S.C. §282.

This statutory presumption derives in part from recognition of the technological expertise of the patent examiners. A reissue application receives a fresh examination, normally concentrated on those references and reasons that occasioned its filing. The record shows that this reissue application received a supplemental internal review by three examiners because it was involved in litigation.

Although IPC's view is incorrect that the PTO's decision must be given controlling weight, we do agree that the examination procedure and result should be given appropriate consideration and due weight by the court. As stated in *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1555, 225 USPQ 26, 31 (Fed. Cir. 1985), "[t]he Examiner's decision, on an original or reissue application, is never binding on the court. It is, however, evidence the court must consider in determining whether the party asserting invalidity has met its statutory burden by clear and convincing evidence".

Upon reissue the "burden of proving invalidity was made heavier", as stated in *Fromson, supra*. This burden must be met by the party asserting invalidity. The district court here relied on the identical references that had been before the reissue examiners, and disdaining the need for expert testimony, reached a different conclusion in law. Although we affirm the obligation of the district court to

reach an independent conclusion, the reissue patent reaches the court clothed in a statutory presumption of validity, and clear and convincing evidence is required to surmount this presumption. *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359-60, 220 USPQ 763, 770 (Fed. Cir.), cert. denied, 105 S.Ct. 95, 224 USPQ 520 (1984).

#### B.

The court referred to the content of the prior art references in broad terms, occasionally using the title of a reference to explain its pertinence. In this crowded art of telephone systems, as IPC correctly pointed out, it is not enough to show that each of the components used by Feil was known, and had been used in other telephone systems. Feil did not claim to have invented any of the components of his claimed system.

[3] From its discussion of the prior art it appears to us that the court, guided by the defendants, treated each reference as teaching one or more of the specific components for use in the Feil system, although the Feil system did not then exist. Thus the court reconstructed the Feil system, using the blueprint of the Feil claims. As is well established, this is legal error. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 774, 218 USPQ 781, 791 (Fed. Cir. 1983), cert. denied, 104 S.Ct. 1284, 224 USPQ 520 (1984).

Illustrative is the court's analysis of reissue claim 1. Pertinent is not only its analysis of the differences between the reissue claim and the prior art; but also the differences between the reissue claim and the original claim. In claim 1, matter enclosed in brackets appeared in the original claim but forms no part of the reissue claim, and matter printed in italics was added by reissue:

1. For a telephone system in which telephone communication is capable of being established for each telephone station of a plurality of telephone stations over a standard telephone line by directly connecting each telephone station to a selected standard telephone line of a plurality of standard telephone lines, each of said plurality of standard telephone lines capable of being directly connected to each of said plurality of telephone stations, an improvement comprising:

a plurality of pairs of contacts, with respective pairs of said contacts being connected with respective ones of said standard telephone lines for allowing said communication; a plurality of relay coils, with respective ones of said relay coils controlling respective pairs of said contacts to be opened or closed;

a plur  
[swi  
push  
nect  
stati  
butt  
of p  
resp  
ard  
witt  
bein  
of s  
ing  
com  
an ele  
rela  
oper  
to es  
tii  
ta  
to  
to m  
la  
a logic  
hold  
leasi  
each o  
displ  
tion  
butt  
mean  
to s  
light  
mean  
play  
stanc  
static  
said sta  
play  
from  
push  
ident  
said  
that  
telep  
Reis  
ground:  
substan  
patent,  
eral est  
referrec  
and Fe  
disclosi  
and pai  
claim 1  
that "C  
way th  
by prior  
at 964.  
not sup  
apparer  
claim 1.

independent conclusion, the reissue eases the court clothed in a statutory question of validity, and clear and convincing evidence is required to surmount this question. *American Hoist & Derrick Co. & Sons, Inc.*, 725 F.2d 1350, 1359-60, 227 USPQ 763, 770 (Fed. Cir.), cert. denied, 449 U.S. 95, 224 USPQ 520 (1984).

## B.

court referred to the content of the prior art in broad terms, occasionally using the title of a reference to explain its use. In this crowded art of telephone systems, IPC correctly pointed out, it is not to show that each of the components Feil was known, and had been used in telephone systems. Feil did not claim to have invented any of the components of his system.

From its discussion of the prior art it is to us that the court, guided by the art, treated each reference as teaching none of the specific components for use in the Feil system, although the Feil system did not exist. Thus the court reconstructed the system, using the blueprint of the Feil system. As is well established, this is legal. *Calman v. Kimberly-Clark Corp.*, 713 F.2d 774, 218 USPQ 781, 791 (Fed. Cir. 1983), cert. denied, 104 S.Ct. 1284, 224 USPQ 520 (1984).

Pertinent is the court's analysis of reissue. Pertinent is not only its analysis of the differences between the reissue claim and the parent, but also the differences between the reissue claim and the original claim. In claim 1, an enclosed in brackets appeared in the original claim but forms no part of the reissue claim and matter printed in italics was added to the reissue claim:

For a telephone system in which telephone communication is capable of being established for each telephone station of a plurality of telephone stations over a standard telephone line by directly connecting each telephone station to a selected standard telephone line of a plurality of standard telephone lines, each of said plurality of standard telephone lines capable of being directly connected to each of said plurality of standard telephone stations, an improvement comprising:

ability of pairs of contacts, with respective contacts of said contacts being connected with respective ones of said standard telephone lines for allowing said communication; ability of relay coils, with respective ones of said relay coils controlling respective pairs of contacts to be opened or closed; and

a plurality of sets of non-locking pushbutton [switch means] switches with each set of pushbutton [switch means] switches connected to respective ones of said telephone stations with respective ones of said pushbutton [switch means] switches of said sets of pushbutton [switch means] switches corresponding to respective ones of said standard telephone lines and being connected with respective ones of said relay coils and being depressed for energizing a selected one of said relay coils for closing a corresponding pair of contacts to allow said telephone communication; and

an electronic holding circuit for each of said relay coils, said holding circuits being operative

to establish a held state after initial energization of the associated relay coil by momentarily depressing the associated pushbutton switch, and

to maintain said corresponding pair of contacts closed while in the held state;

a logic circuit for each station connected to said holding circuits to detect conditions for releasing the held state;

each of said stations comprising [first light display means] a set of status lights, connection means connecting corresponding pushbuttons of said sets of pushbutton [switch means] switches in each of said stations and to said [first light display means] status lights for energizing said [first light display means] status lights in each station to display the status of each of said plurality of standard telephone lines in each of said stations,

said station further comprising [first light display means] an active line indicator separate from said status lights connected to said pushbutton [switch means] switches for identifying the standard telephone line of said plurality of standard telephone lines that the telephone station is using for said telephone communication.

Reissue claim 1 was held invalid on two grounds. The first ground was that it was substantially identical to claim 1 of the '282 patent, and thus invalid on the basis of collateral estoppel. The court in its 1982 decision referred to Carter U.S. Patent No. 3,150,238 and Foulkes U.S. Patent No. 3,757,056 as disclosing "non-locking buttons, relay coils and pairs of contacts" as applied to the original claim 1. In the 1984 decision the court stated that "Claim 1 has not been changed in such a way that alters the above finding of disclosure by prior art." 587 F.Supp. at 1499, 223 USPQ at 964. This treatment of the reissue claim is not supported by the claim content, as will be apparent from the court's further discussion of claim 1.

As the second ground for its holding of invalidity the court analyzed the changes made by reissue. The court identified three areas as new to reissue claim 1, and applied five references to these areas as follows: "See Defendants' Exhs. C13, D4-D6 (non-locking buttons); Defendants' Exhs. C4, C7 (holding circuits); Defendants' Exhs. C16, C13 (separate active lines)." *Id.* at 1499, 223 USPQ at 964 (footnotes omitted).

The first set of cited exhibits refers to articles by Keith, "A New Switching System for 'Right of Way' Companies," *Bell Laboratories Record*, Apr. 1968, and Ozenberger, "Voice Communication System for Air Traffic Control," *Bell Laboratories Record*, May 1961, which the court stated taught the use of non-locking pushbuttons. The second set refers to the Carter patent, which the district court said teaches a "Relay Control Circuit" (the title of the Carter patent), and the Foulkes patent which "recites that [e]ach of these [control] circuits may take any desired and presently known form . . . to perform a recognized control function . . . evaluat[ing] the 'hold' feature." *Id.* at 1499 n.6, 223 USPQ at 946 n.6. The third set of exhibits refers to Simon U.S. Patent No. 3,928,732, which the district court described by its title, "Extension and Line Indicating Display System for Key Telephone System," and Keith, which the district court stated "also discloses separate active lines." *Id.* at 1499 n.7, 223 USPQ at 964 n.7.

The court's analysis of the scope of the new material in reissue claim 1 in itself shows the error in the court's conclusion that as a matter of law reissue claim 1 is substantially identical to its parent claim. The claim limitations of the electronic holding circuits for each relay coil, the logic circuit, and separate active line indicator, in combination with the non-locking pushbutton switches connected to the relay coils, were added by reissue. Observing these differences, their relationship to the invention as a whole, and the prior art, we conclude as a matter of law that reissue claim 1 is not substantially identical to the original claim. The 1982 decision, which was directed to the original claims, does not apply to the reissue claims. Collateral estoppel as a basis for the court's holding of invalidity is not supported in law.

Having determined that a reissue claim is not substantially identical to the parent, the parent claim is of no further moment. As stated in *Wayne-Gossard Corp. v. Moretz Hosiery Mills, Inc.*, 539 F.2d 986, 991, 191 USPQ 543, 546-47 (4th Cir. 1976), "the original claim was at an end, denuded of all potency save as a benchmark of interpretation, at the time of the reissue's infringement."

The original claim is not prior art against the reissue claim. It is not correct to weigh the reissue claim against the original claim. It is not correct to weigh the changes in the reissue claim against the original claim. It is the reissue claim alone that is to be analyzed in accordance with the *Graham* guidelines, and the differences to be considered are the differences between the reissue claim as a whole and the prior art.

In the court's 1982 analysis of the original claims, to which the court referred in its 1984 decision, the court had identified "six principal features which plaintiff argues are not obvious" and explained why the court concluded that these features are obvious by referring to various prior art references showing various of the features in various contexts. *Interconnect Planning Corp. v. Feil*, 543 F.Supp. at 617, 215 USPQ at 739. As we have observed, it is the emphasis on the obviousness of "features," rather than the claimed telephone system as a whole, that constitutes the flaw in the application of section 103 to the Feil claims. As stated in *In re Shuman*, 361 F.2d 1008, 1012, 150 USPQ 54, 57 (CCPA 1966):

It is impermissible to first ascertain factually what appellants *did* and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct appellants' invention from such prior art.

The court in 1982 summarized its conclusion with respect to these six "features" by observing (1) that although the pairs of contacts and relay coils "is not disclosed in either the Keith Article or the Ozenberger Article", the Foulkes and Carter patents do disclose them; (2) that Keith, Ozenberger, and Foulkes refer to pushbutton switches; (3) that Keith shows a set of display lamps although Ozenberger uses a single lamp, and that Paraskevakos (U.S. Patent No. 3,727,003) and Simon et al. show either a digital display or the incoming line number; (4) that Paraskevakos shows a decoder and that "the diode matrix was no mystery to one engineer" (Thomas Fitzmaurice, of Bell Labs, who testified that he readily understood the Feil system after he was shown it); (5) that Keith shows which lines are active; and (6) that the asserted unique master station hook up with blocking means is shown in Ozenberger and a Verdon patent (U.S. Patent No. 3,819,871). *Interconnect Planning Corp. v. Feil*, 543 F.Supp. at 617-19, 215 USPQ at 739-40.

In its 1984 decision the court added the additional citations of references pertinent to the changes in the reissue claims, as discussed above. As in its citation of references against the various features of the original claims, the

court selected from each reference a feature or features that also appeared in the reissue claims. No reference, however, suggested the overall arrangement, the "architecture", of the Feil system.

IPC presented affidavit testimony explaining the references in the context of the state of the telephone systems art at the time, none of which testimony was controverted other than by attorney argument. The most advanced multi-line devices at the time the invention was made, according to this record, used the then state-of-the-art crossbar switching equipment, and electrical or mechanical interconnections or interlocks. The two Bell Labs publications of Keith and Ozenberger, on which defendants and the district court placed substantial emphasis, used crossbar switching. Feil did not.

Mr. Feil's affidavit filed with the district court states "The Ozenberger and Keith articles disclose what I thought I invented in 1974". Mr. Feil made no reference to the crossbar switches required by these references, and offered no discussion of either differences or similarities between his system and those of these references.

The Carter patent used relay switches in the telephone switching system it describes. Carter, of Bell Laboratories, taught the use of quick-release control relays in combination with slow-release work relays, to achieve the specific purposes desired by Carter. Carter also required use of a "locking chain" rather than independently operating relays, and a more complex communication path as compared with Feil's direct connections. Feil established multiple direct connections in a system where theretofore it was believed, according to the record, that crossbar switches would be required.

The Feil system eliminated both crossbar switches and mechanical interlocks or mechanically locking pushbuttons, and instead used relays, a well-known type of switch. But Feil avoided the need (of Carter) to establish potentially large numbers of contacts and operates a concomitantly large number of relays in series in order to connect stations within the system. As IPC's uncontested testimony shows, Feil avoided interconnections and interlocks, both of which, according to the Maywald affidavit, had previously been considered necessary to lock out faults. The Maywald affidavit stated that Carter's approach would be "impossible and impractical" in the trader turret application because "[t]o try and accurately control the release times of different relays over a long period of time would be virtually impossible considering the wear and deterioration of components" in a "trader turret network involving some 20,000 or more relays". Maywald's explanation of the

technical  
tradicte  
attorne  
conclusi

The I  
court als  
plexing c  
switchin  
phone s  
contradic  
panded i  
The dist  
Foulkes  
made of  
claims.

The K  
viously c  
that of  
reference  
mon will  
based on  
air traffi  
scribed :  
"right-of  
system li  
hundred  
crossbar  
system".  
gests tha  
and that  
the admi

The m  
verted b  
turret sy  
nition, m

35 U.  
be deterr  
a whole.  
1524, 15  
1984); R  
Inc., 721  
309 (Fee  
172 (198  
713 F.2d  
(Fed. Ci  
nation in  
tions are  
Designs,  
713 F.2d  
Cir. 198  
USPQ 5

When  
combinai  
subsequ  
son for t  
sight gle  
Hospital  
732 F.2d  
933 & n  
"somethi  
suggest t  
ness, of n

from each reference a feature or also appeared in the reissue reference, however, suggested the element, the "architecture", of the

ed affidavit testimony explains in the context of the state of systems art at the time, none of it was controverted other than argument. The most advanced art at the time the invention was to this record, used the then crossbar switching equipment, or mechanical interconnections the two Bell Labs publications Ozenberger, on which defendants court placed substantial emphasis on crossbar switching. Feil did not affidavit filed with the district the Ozenberger and Keith art that I thought I invented in did not make no reference to the is required by these references, discussion of either differences between his system and those of

atent used relay switches in the ching system it describes. Laboratories, taught the use of control relays in combination with work relays, to achieve the is desired by Carter. Carter e of a "locking chain" rather than operating relays, and a communication path as com's direct connections. Feil esle direct connections in a system before it was believed, record, that crossbar switches ed.

em eliminated both crossbar mechanical interlocks or me- ing pushbuttons, and instead ll-known type of switch. But need (of Carter) to establish numbers of contacts and op- tantly large number of relays to connect stations within the 's uncontroverted testimony led interconnections and in- which, according to the it, had previously been con- to lock out faults. The it stated that Carter's ap- "impossible and impractical" et application because "[i]o control the release times of over a long period of time y impossible considering the ration of components" in a work involving some 20,000 Maywald's explanation of the

technical operation of the references is uncontradicted, although defendants take issue in attorney argument with Maywald's conclusions.

The Foulkes patent, on which the district court also relies, described a "bipolar multiplexing circuit" based on a "contact tree" relay switching arrangement. Foulkes taught a telephone system that Maywald avers, without contradiction, "could not be realistically expanded into large systems like trader turrets". The district court did not explain how the Foulkes or other systems of different circuitry made obvious the different system of Feil's claims.

The Keith and Ozenberger systems, as previously discussed, are different systems from that of Feil. Like the systems of the other references, they contain some elements in common with that of Feil. The Ozenberger system, based on crossbar switches, was designed for air traffic control. The Keith system is described as tailored to the specific needs of "right-of-way" companies, and is a cordless system limited to up to eight consoles of up to a hundred lines. As Keith says, "[a] system of crossbar switches is the heart of the switching system". Neither Keith nor Ozenberger suggests that the crossbars be replaced with relays and that the other changes be made to produce the admittedly different Feil system.

The novelty of the Feil system is not controverted by the defendants. Its value in trader turret systems has received the ultimate recognition, market success and imitation.

35 U.S.C. § 103 requires that obviousness be determined with respect to the invention as a whole. See, e.g., *Jones v. Hardy*, 727 F.2d 1524, 1528, 220 USPQ 1021, 1024 (Fed. Cir. 1984); *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), cert. denied, 105 S.Ct. 172 (1984); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1537, 218 USPQ 871, 877 (Fed. Cir. 1983). This is essential for combination inventions, for generally all combinations are of known elements. *Environmental Designs, Ltd. v. Union Oil Co. of California*, 713 F.2d 693, 698, 218 USPQ 865, 870 (Fed. Cir. 1983), cert. denied, 104 S.Ct. 709, 224 USPQ 520 (1984).

When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577 & n.14, 221 USPQ 929, 933 & n.14 (Fed. Cir. 1984). There must be "something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination". *Lindemann*

*Maschinenfabrik GmbH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984).

Critical to the analysis is an understanding of the particular results achieved by the new combination. The claims here at issue are directed to a combination of known components of telephone systems in an admittedly new way to achieve a new total system. Neither the district court in its opinion, nor the defendants, identified any suggestion in the prior art that the components be combined as they were by Feil or that such combination could achieve the advantages of the Feil system.

Not only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time — a technician without our knowledge of the solution. The defendants propounded and the district court appears to have followed an analytical method that well illustrates the "mosaic" analogy discussed in *W.L. Gore & Assocs.*, 721 F.2d at 1552, 220 USPQ at 522, where this court said:

[T]he claims were used as a frame, and individual naked parts of separate prior art references were employed as a mosaic to recreate a facsimile of the claimed invention.

Defendants refer to the decision of the Supreme Court in *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 189 USPQ 449 (1976). As the Court there held, Sakraida's combination of old elements to wash barn floors with flowing water did not produce a new or different function, and affirmed the district court's holding that "all of the elements of [the combination] are old . . . and the combination of them . . . being neither new nor meeting the test of non-obviousness." *Id.* at 274, 189 USPQ at 450. In the Feil invention the combination was admittedly new, and it produced a new system having theretofore unavailable attributes.

Recognizing the difficulty of casting one's mind back to the state of technology at the time the invention was made, courts have long recognized the usefulness of evidence of the contemporaneous attitude toward the asserted invention. A retrospective view of the invention is best gleaned from those who were there at the time. Mr. Feil, the inventor impugning his own invention, now avers that he did no more than did the prior art, specifically the Keith and Ozenberger articles. Mr. Feil's disavowal of his invention is staunch, although he less modestly commented in 1977, before he left IPC, on the reaction of Bell Labs' engineer at that earlier time:

He [Fitzmaurice] showed too much enthusiasm. I mean, he was really excited by the

thing. Like this is incredible. You guys are geniuses.

You're 50 miles ahead of Bell Labs. (App. Vol. VI, F357).

\* \* \*

You know what he said. He said You're 50 miles ahead of Bell Lab? He said "miles", not years, he made it in miles. You're 50 miles ahead of the Bell Labs. (App. Vol. VI, F355).

Mr. Elia of the Republic Bank, one of IPC's customers, attested:

Upon viewing the equipment, the AT&T people indicated that it was unbelievable. They did not think it could be done. They were surprised that it was done. (App. Vol. VI, F360).

Although the district court remarked in its 1982 decision that evidence of commercial success "cannot be afforded any weight" "in light of my finding of obviousness", 543 F.2d at 619, 215 USPQ at 741, such evidence when present must be considered and afforded appropriate weight. *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 F.2d 1573, 1575, 222 USPQ 744, 746 (Fed. Cir. 1984), cert. denied, 105 S.Ct. 2138 (1985); *Jones v. Hardy*, 727 F.2d at 1530, 220 USPQ at 1026; *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1575, 220 USPQ 97, 105 (Fed. Cir. 1983); *Stratoflex, Inc.*, 713 F.2d at 1538-39, 218 USPQ at 879; *In re Sernaker*, 702 F.2d 989, 996, 217 USPQ 1, 7 (Fed. Cir. 1983); *In re Mageli*, 470 F.2d 1380, 1383, 176 USPQ 305, 307 (CCPA 1973). IPC offered affidavit and deposition evidence, by two experts in telephone systems and by a Bell system engineer knowledgeable in the field of trader turrets. Their uncontested testimony was to the effect that the Feil system was perceived at the time as an exceptional technological achievement.

The requirement that "secondary considerations" be considered in determinations under section 103 aids in evaluating the state of the art at the time the invention was made. *In re Piascak*, 745 F.2d 1468, 1475, 223 USPQ 785, 790 (Fed. Cir. 1984). It is not pertinent that the invention was easily understood after it was made — a factor that appears to have been considered significant by the district court, *see* 543 F.Supp. at 619, 215 USPQ at 741 — but whether it would have been obvious to make the invention at the time. Giving due weight to the market success and contemporaneous reaction to the Feil trader turret system, the record does not contain clear and convincing evidence that the Feil invention of the reissue claims would have been obvious to one

of ordinary skill in this art at the time the invention was made.

Reissue claims 2-9 are either dependent on reissue claim 1, include similar limitations, or include additional limitations. Although each claim has been considered separately, they need not here be treated in redundant detail. For each claim we are compelled to the conclusion that the burden of proving invalidity by clear and convincing evidence has not been met.

The summary judgment of invalidity of Reissue Patent No. 31,144, in terms of 35 U.S.C. § 103, is vacated, as is the dismissal of the infringement claim. The case is remanded to the district court for further proceedings consistent herewith.

*VACATED and REMANDED.*

227 USPQ

motions for sum  
motion for sum

Irwin Karp, PC  
for plaintiff,  
America.

Paskus, Gordon  
(David S. F  
counsel) for F

Rudolph W. G  
Southern Dis  
ick M. Lawr  
tant U.S. Att

James K. Man  
Mitchell & F  
and Stephen  
son, Richard  
Owen, Fellm  
ton, D.C., for  
turers' Insti  
America, Inc  
tions Interna

Goettel, Dist

In this action  
the constitutio  
clause of the C  
U.S.C. § 601  
bids the import  
the United Stat  
tions of America  
are manufactur

The defendant  
action or, alter  
ment. The plai  
have cross-move  
the reasons set  
the defendants'  
and denies the  
intervenor's cro  
I. **BACKGROUND**

A. Statutory

The manufac  
Act is contained  
(c) of Title 17  
Sections 601 an  
on October 19,  
Revision Act,  
2588-90 (1976)

Prior to July  
vised by subsi  
or public disti  
copies of a w

Action by The Authors League of America, Inc., and Irwin Karp, The Association of America Publishers, Plaintiff-Intervenor, against David L. Ladd, Register of Copyrights, James Baker, Secretary of the Treasury, and William Von Raab, Commissioner, United States Customs Service, to challenge the constitutionality of Copyright Act "manufacturing clause," 17 USC 601-603. On defendants' motion to dismiss and on parties' cross-

<sup>1</sup> Section 601 t  
1982. On July 13,  
ly extended until

h circumstances, copyright ownership is in the author.<sup>2</sup> Second, even if the ion did apply, because plaintiff would independent contractor, there would be some writing evidencing the trans his copyright to his subjects. See 17 §101. Plaintiff has stated in a sworn it that there is no such writing or. In the absence of defendants' putting ctual facts into issue, therefore, the of plaintiff's summary judgment mo as appropriate and is upheld. ordered.

ats principally argue that the common law herein. As I have discussed above, however, i Act's provisions are exclusive in this area. dants cannot dispute that the photogra "author" of the photograph. Moreover, culation that there could be some kind of authorship has no evidentiary support. y judgment in such a context is appropriate. Exxon Corp. v. Federal Trade Commis. F.2d 120, 128 (D.C. Cir. 1980) ("It is not of Rule 56 to preserve purely speculative fact for trial \* \* \* \*").

#### Court of Appeals, Federal Circuit

ACS Hospital Systems, Inc.  
v. Montefiore Hospital et al.

Nos. 83-1121 and 83-1132

Decided Apr. 27, 1984

#### PATENTS

##### 1. Pleading and practice in courts — Burden of proof — Validity (§53.138)

###### Presumption from patent grant — In general (§55.1)

Presumption of validity is never annihilated, destroyed, or even weakened, regardless of what facts are of record; rather it is clear statutory procedural device that assigns to party asserting invalidity burden of proving invalidity; burden of persuasion is, and remains always, on party asserting invalidity.

###### 2. Construction of specification and claims — In general (§22.01)

###### Construction of specification and claims — By specification and drawings — To save claim (§22.257)

Claims are to be read and construed in light of specification and prosecution history of patent; further, claim should be so construed, if possible, as to sustain their validity.

###### 3. Construction of specification and claims — In general (§22.01)

Claim construction is question of law.

###### 4. Patentability — Anticipation — Combining references (§51.205)

Obviousness cannot be established by combining teachings of prior art to produce claimed invention, absent some teaching or suggestion supporting combination; teachings of references can be combined only if there is some suggestion or incentive to do so, under 35 USC 103.

###### 5. Infringement — Tests of — Comparison with claims (§39.803)

Infringement is determined on basis of claims, not on basis of comparison with patentee's commercial embodiment of claimed invention.

###### 6. Court of Appeals for the Federal Circuit — Weight given decision reviewed (§26.59)

CAFC is confined to trial court's limited findings and is forced to draw from facts

found, those inferences that are necessary to support ultimate finding that patent is not infringed; in this endeavor CAFC does not itself find those facts that trial court failed to set out for it; as appellate court, CAFC lacks power to perform that exercise; where trial court fails to make findings, judgment will normally be vacated and action remanded for appropriate findings to be made; where full understanding may be had without aid of separate findings, however, narrow exception to that general rule is recognized; ultimate finding of fact in case, whether initially by trial court, or as affirmed on appeal, rests on same underpinnings, that is, necessary subsidiary facts, supported by evidence of record, that lead to ultimate finding; where district court has not misapplied controlling legal standards in its evaluation of evidence, its ultimate finding as well as subsidiary findings upon which ultimate finding necessarily depends, is subject to review on appeal under clearly erroneous standard of FedRCivP 52(a); record is examined in order to review trial court's judgment, and findings it made or necessarily had to have made to support that judgment and, thus, to conclude controversy at appellate stage without unnecessary further expenditure of judicial resources, if possible.

###### 7. Costs — Attorney's fees (§25.5)

###### Court of Appeals for the Federal Circuit — Weight given decision reviewed (§26.59)

Prevailing accused infringer must establish that trial judge abused his discretion in regard to accused infringer's motion for attorney fees, not merely that trial judge committed clear error, in order to prevail on cross appeal on that issue.

###### Particular patents — Television Switches

4,183,057, Sonnenberg, Actuating System for a Rental Television, holding of invalidity reversed; holding of noninfringement affirmed.

Appeal from District Court for the Western District of Pennsylvania, Dumbaugh, J.; 220 USPQ 731.

Action by ACS Hospital Systems, Inc., against Montefiore Hospital, and Wells National Services Corporation, for patent infringement. From judgment for defendants, but denying attorney fees, both parties appeal. Modified.

Frank J. Benasutti, Philadelphia, Pa., for appellant.

David J. Cushing, Washington, D.C. (Daryl Mexic, Washington, D.C., on the brief) for appellees.

Before Miller and Smith, Circuit Judges, and Re, Judge.\*

Smith, Circuit Judge.

In this patent case, ACS Hospital Systems, Inc. (ACS), appeals from a judgment of the U.S. District Court for the Western District of Pennsylvania holding U.S. patent No. 4,183,057, issued to Sonnenberg (the Sonnenberg patent), invalid as obvious under 35 U.S.C. §103 (1976) and not infringed. Montefiore Hospital and Wells National Service Corp. (Wells) cross-appeal from the district court's denial of their motion for attorney fees. The judgment is reversed with respect to invalidity and affirmed with respect to noninfringement. With respect to Wells' cross-appeal from the denial of attorney fees, the judgment is affirmed.

#### Background

ACS's Sonnenberg patent claims a rental television system comprising a key operated actuating switch, an override switch, and a signal light to indicate that the override switch has been actuated. When the key switch is in the "on" position, the television operates normally. For rental use, the key switch is placed in the "off" position by a key operator. In order to rent the television, the viewer depresses the override switch which enables the television to operate normally without the necessity of turning on the key operated switch. When the override switch has been activated the indicator signal is illuminated, signaling that the television has been rented. Claim 1 is representative:

A television system constructed for rental use, the television system comprising:

actuating means including a key operated switch switchable between an off position for preventing normal operation of the television and an on position for enabling the television to be operated; override switching means capable of being switched from a normal

position to an actuated position for overriding said key operated switch when in its off position and enabling the television to be operated; and said override switching means when switched in to [sic] its actuated position remains in said position until said key operated switch is switched into its on position; and indicating means for providing an indicating signal when said override switching means has been switched into its actuated position.

#### Validity

The trial court held the claims of the Sonnenberg patent invalid under section 103. While the trial court's opinion deals predominantly with infringement, the court purported to apply the standards articulated in *Graham v. John Deere Co.*<sup>1</sup> in determining the issue of validity. In concluding that the Sonnenberg patent is invalid under section 103, the district court relied on override switches generally and ACS's "COMPU-TEL" fully automated television rental system as prior art.

The court below stated that "the overriding of switches by providing an alternative path for current to actuate an appliance is a commonly practiced technique well known in the art prior to Sonnenberg's patent." It held that his claim 1 is therefore invalid as obvious. The trial judge adopted Wells' expert's description of ACS's COMPU-TEL system and held the Sonnenberg patent invalid as an attempt by ACS to "monopolize all systems of enabling a hospital patient to view television \*\*\* without the aid of an attendant." (Emphasis in original.) He commented that "[t]he statutory presumption [of validity] of 35 U.S.C. 282 is entirely annihilated by the indisputable facts in the record."

#### Presumption of Validity

[1] As an initial matter, we hold that the trial court's treatment of the presumption of validity is incorrect as a matter of law. The presumption is *never* annihilated, destroyed, or even weakened, regardless of what facts are of record.<sup>2</sup> Rather, it is a clear statutory procedural device which assigns to the party

<sup>1</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966).

<sup>2</sup> *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1534, 218 USPQ 871, 875-76 (Fed.Cir. 1983).

\* The Honorable Edward D. Re, Chief Judge, United States Court of International Trade, sitting by designation.

position to an actuated position for overriding said key operated switch when in its off position and enabling the television to be operated; and said override switching means when switched in to [sic] its actuated position remains in said position until said key operated switch is switched into its on position; and dicing means for providing an indicating signal when said override switching means has been switched into its actuated position.

#### Validity

court held the claims of the patent invalid under section 103. trial court's opinion deals predominately in infringement, the court purported standards articulated in Graham *et al.* Co.<sup>1</sup> in determining the issue concluding that the Sonnenberg valid under section 103, the distlied on override switches generally's "COMPU-TEL" fully automation rental system as prior art. below stated that "the overriding by providing an alternative path to actuate an appliance is a com-ced technique well known in the Sonnenberg's patent." It held that is therefore invalid as obvious. judge adopted Wells' expert's de- ACS's COMPU-TEL system Sonnenberg patent invalid as an CS to "monopolize all systems of ospital patient to view television t the aid of an attendant." (Em- ginal.) He commented that "[t]he esumption [of validity] of 35 is entirely annihilated by the facts in the record."

#### esumption of Validity

initial matter, we hold that the treatment of the presumption of correct as a matter of law. The is never annihilated, destroyed, kened, regardless of what facts. Rather, it is a clear statutory vice which assigns to the party

John Deere Co., 383 U.S. 1, 148 66).  
Inc. v. Aeroquip Corp., 713 F.2d 18 USPQ 871, 875-76 (Fed.Cir.

asserting invalidity the burden of proving invalidity.<sup>2</sup>

A patent shall be presumed valid. \* \* \* The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.<sup>3</sup>

The burden of persuasion is, and remains always, on the party asserting invalidity.<sup>4</sup> In the present case this error is not harmless. The district court's holding of invalidity has been shown, on the entire record, to have been reached on the basis of both clearly erroneous findings of fact and misapplication of the law.<sup>5</sup>

#### Section 103

This court has in recent months issued a number of opinions addressing the analysis of obviousness under section 103<sup>6</sup> and those opinions provide a comprehensive guide to analysis. We hold that the trial court's analysis of obviousness is inadequate under Graham<sup>7</sup> to sustain a holding of invalidity un-

<sup>1</sup>Id.

<sup>2</sup>35 U.S.C. §282 (1976).

<sup>3</sup>Stevenson v. U.S. Int'l Trade Comm'n, 612 F.2d 546, 551, 204 USPQ 276, 281 (CCPA 1979); Solder Removal Co. v. U.S. Int'l Trade Comm'n, 582 F.2d 628, 632-33, 199 USPQ 129, 132-33 (CCPA 1978). See also Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 220 USPQ 193 (Fed.Cir. 1983); Medtronic, Inc. v. Cardiac Pacingmakers, Inc., 721 F.2d 1563, 220 USPQ 97 (Fed. Cir. 1983); Stratoflex, 713 F.2d at 1534, 218 USPQ at 875-76; Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 773-74, 218 USPQ 781, 790 (Fed. Cir. 1983).

<sup>4</sup>Cf. Medtronic, 721 F.2d at 1566, 220 USPQ at 99 (errors in decisional approach considered harmless).

<sup>5</sup>In re Sernaker, 702 F.2d 989, 217 USPQ 1 (Fed. Cir. 1983); Orthopedic Equip. Co. v. United States, 702 F.2d 1005, 217 USPQ 193 (Fed. Cir. 1983); Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc., 707 F.2d 1376, 217 USPQ 1281 (Fed.Cir. 1983); Chore-Time Equip., Inc. v. Cumberland Corp., 713 F.2d 774, 218 USPQ 673 (Fed. Cir. 1983); Carl Schenck, A.G. v. Nortron Corp., 713 F.2d 782, 218 USPQ 698 (Fed.Cir. 1983); Environmental Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 218 USPQ 865 (Fed.Cir. 1983); Stratoflex, 713 F.2d 1530, 218 USPQ 871.

<sup>6</sup>Graham, 383 U.S. at 17-18, 148 USPQ at 467, provides, in pertinent part:

"\* \* \* [Section] 103 \* \* \* lends itself to several basic factual inquiries. Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surround-

der section 103. However, the trial court's opinion contains sufficient findings of fact, supported in the record, to enable us to review the conclusion below that the Sonnenberg patent is invalid.

#### Scope and Content of the Prior Art.

In determining the scope and content of the prior art, the trial court found that override switches generally were well known in the art. It also found that ACS's COMPU-TEL system was within the prior art under section 102(g). The district court did not in its opinion rely on any other prior art reference in determining whether the claimed invention would have been obvious under section 103.

Five U.S. patents<sup>8</sup> are cited in the Sonnenberg patent as prior art. Further, the parties refer to the "Western New York Hospital" rental television system as prior art. While the trial judge made no mention in his opinion of these additional references, on the basis of the record before us, they each constitute prior art relative to the Sonnenberg patent. We hold that the trial court's limited assessment of the prior art was clearly erroneous in that the court below failed to find that these additional references are within the scope and content of the prior art. These errors, however, have not been shown to have influenced the trial court's judgment in this case and, accordingly, we consider them harmless.

#### Differences.

With respect to the differences between the claimed subject matter and the prior art, the district court gave claim 1 of the Sonnenberg patent an extremely broad construction. It adopted the opinion of Wells' expert that the COMPU-TEL system contains every feature of claim 1. Hence, the court below found no significant differences between the claimed subject matter and the prior art. We hold that finding to be clearly erroneous. In addition, that finding reflects an erroneous construction of the claims.

The trial court in its discussion of obviousness, rather than ascertaining the differences between the claimed subject matter and the prior part, focused on the differences between

ing the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. \* \* \*

<sup>8</sup>Norris, U.S. patent No. 2,856,474; Townsend, U.S. patent No. 3,188,384; Sargent, U.S. patent No. 3,335,421; Daniel, U.S. patent No. 3,631,444; and Kosco, U.S. patent No. 3,886,302.

the Wells and the ACS systems. In so doing, it adopted Wells' expert's explanation of the differences between claim 1 and the Wells system — differences relating to literal infringement, not validity. We conclude that the trial court erred in adopting Wells' expert's interpretation of claim 1.

Differences between the prior art and the claimed invention are apparent from the record. First, while override switches are used in a wide variety of applications, the examples of override switches cited by the district court are not relevant to the claimed subject matter as a whole — television rental systems. The district court made no attempt in its opinion to identify the differences between the override switching examples that it cited and the claimed subject matter.

Second, the record discloses that COMPU-TEL is a fully automated television rental system whereas the claimed invention involves human monitoring and control. While COMPU-TEL and the claimed invention both exhibit certain switching elements, the functions of the switching elements in the two systems are different. The fully automated operation of the COMPU-TEL system does not involve overriding a locked key switch. The patient switch in the COMPU-TEL system functions to actuate the television as well as to initiate billing. The override switching means claimed in the Sonnenberg patent, on the other hand, functions to provide an alternative current path to the locked key switch and to actuate the indicator light.

Third, the prior art of record that the court did not discuss also differs significantly from the claimed subject matter. The five patent references cited in the Sonnenberg patent involve a variety of lock, metering, and control systems. None of them, however, employs an override switching mechanism to overcome a key operated actuating switch. The Western New York Hospital system involves a three position key switch. Yet, that system differs from the claimed subject matter in that it too does not employ override switching means.

Hence, we hold the trial court's assessment, that there are no differences between the claimed subject matter and the prior art, was clearly erroneous.

#### *Level of Ordinary Skill and Secondary Considerations.*

Additionally, the court below made no express finding with respect to the level of ordinary skill in the art. The trial court's analysis, however, clearly indicates that the level of skill was considered to be quite low. We interpret the court's findings as fixing the

level of ordinary skill in the art as that of a layman. That finding has not been shown to be clearly erroneous. The court made no findings with respect to secondary considerations.

#### *Claim Construction.*

As noted above, the trial court's opinion reflects an extremely broad construction of the claims. Contrary to the district court's construction of the claims, the Sonnenberg patent does not claim "all systems of enabling a hospital patient to view television normally under his own power without the aid of an attendant." (Emphasis in original.) The court ignored express claim limitations governing the function of the switching means.

[2,3] Claims are to be read and construed in light of the specification and the prosecution history of the patent.<sup>10</sup> Further, claims should be so construed, if possible, as to sustain their validity.<sup>11</sup> Applying these principles, the claims of the Sonnenberg patent should be given a far more limited construction than that given by the district court in holding the claims invalid. The claims are limited to a system in which override switching means function to override a key switch when in its "off" position, enabling the television to operate normally. The Sonnenberg patent does not claim "all" hospital rental systems capable of operation without an attendant. Claim construction is a question of law.<sup>12</sup> We hold that the trial court's construction of the claims is incorrect as a matter of law.

#### *Obviousness.*

Turning now to the determination of obviousness under section 103, we conclude that none of the references, either alone or in combination, would have disclosed or suggest-

<sup>10</sup> Fromson v. Advance Offset Plate, Inc., 720 F.2d 1565, 1570-71, 219 USPQ 1137, 1140-41 (Fed. Cir. 1983); Autogiro Co. v. United States, 384 F.2d 391, 397-99, 155 USPQ 697, 702-04 (Ct. Cl. 1967).

<sup>11</sup> Carman Indus., Inc. v. Wahl, 724 F.2d 932, 937 n.5, 220 USPQ 481, 485 n.5 (Fed. Cir. 1983); Klein v. Russell, 86 U.S. 433, 466 (1874); Turrill v. Michigan S. & N.I. R.R., 68 U.S. 491, 510 (1864).

<sup>12</sup> Autogiro, 384 F.2d at 397-99, 155 USPQ at 702-04; LaSalle v. Carlton's Laydown Serv., Inc., 680 F.2d 432, 216 USPQ 276 (5th Cir. 1982); Studiengesellschaft Kohle mbH v. Eastman Kodak Co., 616 F.2d 1315, 206 USPQ 577 (5th Cir.), cert. denied, 449 U.S. 1014, 208 USPQ 88 (1980).

in the art as that of a  
has not been shown to  
The court made no  
xcept to secondary

trial court's opinion  
broad construction of  
o the district court's  
ims, the Sonnenberg  
ll systems of enabling  
w television normally  
without the aid of an  
n original.) The court  
limitations governing  
thing means.

e read and construc-  
ion and the prosecu-  
ent.<sup>10</sup> Further, claims  
1, if possible, as to  
Applying these prin-  
e Sonnenberg patent  
ore limited construc-  
the district court in  
id. The claims are  
hich override switch-  
verride a key switch  
, enabling the televi-  
ly. The Sonnenberg  
"all" hospital rental  
ation without an at-  
tion is a question of  
rial court's construc-  
orrect as a matter of

etermination of obvi-  
13, we conclude that  
either alone or in  
disclosed or suggest-

Offset Plate, Inc., 720  
USPQ 1137, 1140-41  
v. United States, 384  
2 697, 702-04 (Ct. Cl.

Wahl, 724 F.2d 932,  
5 n.5 (Fed. Cir. 1983);  
3, 466 (1874); Turrill  
R., 68 U.S. 491, 510

397-99, 155 USPQ at  
Laydown Serv., Inc.,  
276 (5th Cir. 1982);  
H v. Eastman Kodak  
USPQ 577 (5th Cir.);  
208 USPQ 88 (1980).

ed to one of ordinary skill in the art the use of override switching means in a television rental system. The trial court's heavy reliance on the widespread use of override switches appears to be no more than hindsight reconstruction of the claimed invention. The court below identified no source, other than the Sonnenberg patent itself, for the suggestion to use override switching means in a television rental system.

[4] Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination.<sup>13</sup> Under section 103, teachings of references can be combined *only* if there is some suggestion or incentive to do so.<sup>14</sup> The prior art of record fails to provide any such suggestion or incentive. Accordingly, we hold that the court below erred as a matter of law in concluding that the claimed invention would have been obvious to one of ordinary skill in the art under section 103.

#### Infringement

The trial court found that the Wells system does not infringe the claimed invention, either literally or under the doctrine of equivalents. Once again adopting the testimony of Wells' expert, the court below found that "the Wells system does not contain the element of overriding a locked switch." The district court also found differences between the ACS system and the Wells device with respect to the mechanism and circuitry of the actuating switch as well as with respect to the indicator light.

[5] These latter findings, however, will not support a finding of no infringement. The claims of the Sonnenberg patent are not limited to a specific switching mechanism or to specific indicator light circuitry. The district court appears to have compared the Wells

system with ACS's commercial product, rather than with the claims of the Sonnenberg patent. Infringement is determined on the basis of the claims, not on the basis of a comparison with the patentee's commercial embodiment of the claimed invention.

[6] The district court's failure to supply more comprehensive findings of fact compounds the difficulty of appellate review, particularly in view of the complexity of the technical subject matter of this appeal. Findings of fact are to be construed liberally in support of a judgment. Confined to the trial court's limited findings, we are forced to draw from the facts found those inferences that are necessary to support the ultimate finding that the Sonnenberg patent is not infringed by Wells.<sup>15</sup>

In this endeavor we are not ourselves finding those facts which the trial court failed to set out for us. As an appellate court, we lack the power to perform that exercise. Where the trial court fails to make findings, the judgment will normally be vacated and the action remanded for appropriate findings to be made.<sup>16</sup> Where a full understanding may be had without the aid of separate findings, however, we recognize a narrow exception to that general rule.<sup>17</sup>

The ultimate finding of fact in a case, whether initially by the trial court, or as affirmed on appeal, rests on the same underpinnings, i.e., the necessary subsidiary facts, supported by evidence of record, that lead to that ultimate finding. Where the district court has not misapplied the controlling legal standards in its evaluation of the evidence, its ultimate finding as well as the subsidiary findings upon which the ultimate finding necessarily depends, is subject to review on appeal under the clearly erroneous standard of Fed.R.Civ.P. 52(a).<sup>18</sup> We examine the record in order to review the trial court's judgment, and the findings it made or necessarily had to have made to support that judgment and, thus, to conclude the controversy at this stage without unnecessary further expenditure of judicial resources, if possible.

#### The Sonnenberg Claims.

The Sonnenberg patent claims a rental television system having key operated actuat-

<sup>13</sup> Orthopedic Equip. Co., 702 F.2d at 1012, 217 USPQ at 199; cf. *In re Samour*, 571 F.2d 559, 563, 197 USPQ 1, 4 (CCPA 1978) (noting the rule in the §103 context and declining to extend that rule to §102(b) rejections); *Corometrics Medical Sys., Inc. v. Berkeley Bio-Engineering, Inc.*, 193 USPQ 467, 475 (N.D. Cal. 1977).

<sup>14</sup> *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Regel*, 526 F.2d 1399, 188 USPQ 136 (CCPA 1975); *In re Avery*, 518 F.2d 1228, 186 USPQ 161 (CCPA 1975); *In re Imperato*, 486 F.2d 585, 179 USPQ 730 (CCPA 1973); *In re Andre*, 341 F.2d 304, 144 USPQ 497 (CCPA 1965).

<sup>15</sup> See J. MOORE, J. LUCAS, MOORE'S FEDERAL PRACTICE ¶52.06[1] (2d ed. 1984).

<sup>16</sup> *Pullman-Standard v. Swint*, 456 U.S. 273, 292 n.22 (1982); 5A MOORE'S FEDERAL PRACTICE ¶52.06[2].

<sup>17</sup> See 5A MOORE'S FEDERAL PRACTICE ¶52.06[2] n.4 and cases cited therein.

<sup>18</sup> Cf. *Pullman-Standard*, 456 U.S. 273.

ing means capable of being overridden by an override switching means. An indicating means signals that the override switching means has been actuated. Once overridden, the switches and the indicator light remain in their overridden positions until the key operated switch is switched on, resetting the override switching and indicating means.

*The Accused Infringing Device.*

The Wells device also contains each of the three physical elements of claims 1 of the Sonnenberg patent: (1) a key operated actuating switch; (2) a remote control actuating switch; and (3) an indicator light. The district court, however, found that the Wells device does not contain the claimed limitation of overriding a locked switch — a difference in function.

The Wells device is a modified version of a standard hospital/hotel/motel television receiver. The keylock in the Wells system actuates 5 switches: S1XA; S1XB; S1B; S1C; and S1D [Fig. 1].

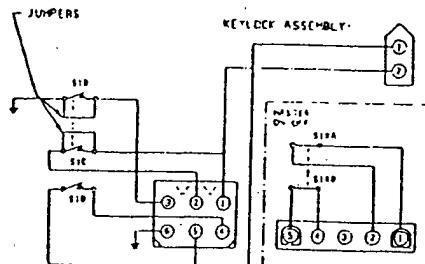


Fig. 1  
Wells Device  
Keylock Assembly As Manufactured

In the Wells device, the jumper wires, provided by the manufacturer on switches S1B and S1C, are not removed. [Fig. 2.]

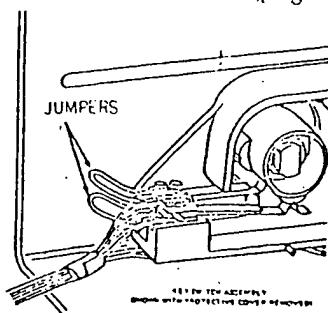


Fig. 2  
Wells Device  
Rear of Key Switch Showing Jumpers

Switches S1B and S1C are shorted out by those jumper wires, rendering those switches electrically inoperable.

Additionally, switch S1D [Fig. 1] is "replaced" by relay RL-2 [Fig. 3] of the Wells remote control circuit.

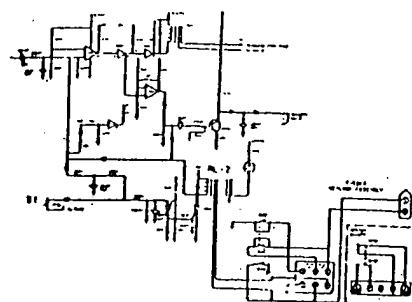


Fig. 3  
Wells Device  
Schematic of Remote Control  
and Key Switch Assembly

Relay RL-2 is connected in parallel with switch S1D and one of the leads to switch S1D is cut between switch S1D and the connection of the lead to relay RL-2 [Fig. 3]. Thus, the circuit through switch S1D is broken, rendering that switch electrically inoperable.

Unlike switch S1D which it replaces, relay RL-2 is not controlled by the key switch. Rather, switch S1 [Fig. 3], located on the remote control unit, operates relay RL-2 in the Wells device. When S1 is not depressed, relay RL-2 remains normally closed. When switch S1 is depressed, the coil in relay RL-2 is energized causing relay RL-2 to open. Similarly, switch S1D, which relay RL-2 replaces, was normally closed when the television was not rented and was opened by turning the key switch to rent the television.

Switches S1B, S1C, and S1D, therefore, are disabled in the Wells device. The key switch operates only two switches — S1XA and S1XB [Fig. 1] — which control the delivery of power to the television receiver. When these switches are closed [positions 2

are shorted out by  
closing those switches

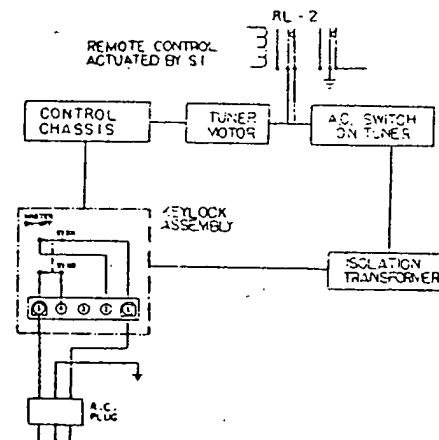
S1D [Fig. 1] is "re-  
Fig. 3] of the Wells

and 3] [Table 1], power is delivered to the tuner; when these switches are open [position 1] [Table 1], the circuit is broken and no power reaches the tuner.

the Wells device.<sup>20</sup> Switch S1 and the key switch are electrically independent in the Wells device [Fig. 4].

KEY SWITCH & PROGRAMMING TAB POSITION TABLE AS MANUFACTURED								
POS	KEY SWITCH	FUNCTION	SELECTED	PORT	PROGRAMMING TAB	CHANNEL	SELECTED	PORT
1	(S1)	OFF	PORT 1	PORT 1	UNBLOCKED	100	PORT 1	PORT 1
2	(S1)	ON	PORT 1	PORT 1	LOCKED	100	PORT 1	PORT 1
3	(S1)	ON	PORT 1	PORT 1	LOCKED	100	PORT 1	PORT 1

Table 1

Fig. 4  
Wells Device  
A.C. Switching

As manufactured, when the key switch of a standard receiver is in position 2 [Table 1], switch S1D is open and the television operates normally. Position 2 functions as an "on" setting in the standard receiver. In the Wells device, however, switch S1D [Table 1] has been disconnected and it has been replaced by relay RL-2. Relay RL-2 cannot be opened by manipulation of the key switch, as was switch S1D. Thus, the receiver cannot be actuated merely by turning the key switch to position 2 in the Wells device.<sup>19</sup> Switch S1 opens relay RL-2. The Wells receiver can be made fully operable only by depressing switch S1 [Fig. 3] while master on-off switches S1XA and S1XB are closed — position 2 or 3 [Table 1].

When the key switch is in position 1, power is interrupted and depressing actuating switch S1 will not actuate the receiver. The Wells key switch performs the same function in position 2 as in position 3. In both of these positions, while power is supplied to the tuner, the actuating switch S1 must be depressed in order to actuate the television. Thus, switch S1 does not override the key switch of

In summary, the Wells device exhibits three modes of operation: (1) off — locked out (switches S1XA and S1XB open); (2) rentable — key position 2 or 3 and S1 not actuated (switches S1XA and S1XB closed and switch S1 open); and (3) rented — key position 2 or 3 and S1 actuated (switches S1XA and S1XB closed and switch S1 closed). Normal operation of the Wells device can be achieved only by depressing S1 while the power is switched on (key switch position 2 or 3). The invention claimed in the Sonnenberg patent, on the other hand, also exhibits three modes of operation: (1) "off" — rentable (override switch not actuated); (2) "On" — rented (override switch actuated); and (3) "on" — key operation (key switch turned on and override switch not actuated).

On the basis of our examination of the record we infer that the district court neces-

<sup>20</sup> Our assessment of the operation of the Wells device is based on the trial court's findings and on the documentary and testimonial evidence of record. It appears that only switches S1XA and S1XB are controlled by the key switch. Thus, our analysis supports the trial judge's implication that there is no functional difference between positions 2 and 3 of the key switch. The above analysis assumes that the key switch does not operate some third circuit that is actuated in either position 2 or position 3, but not both. We are aware of no evidence that such a third circuit fulfills the role of the key switch and is in turn overridden by switch S1.

<sup>19</sup> It appears that had RL-2 and S1D been wired in series, instead of in parallel with S1D disabled, the Wells device would exhibit the claimed "on" function.

in parallel with  
e leads to switch  
h S1D and the  
ay RL-2 [Fig. 3].  
switch S1D is  
itch electrically

it replaces, relay  
the key switch.  
, located on the  
s relay RL-2 in  
is not depressed,  
ly closed. When  
in relay RL-2  
RL-2 to open.  
ich relay RL-2  
1 when the tele-  
was opened by  
t the television.

S1D, therefore,  
device. The key  
ches — S1XA  
ich control the  
vision receiver.  
sed [positions 2